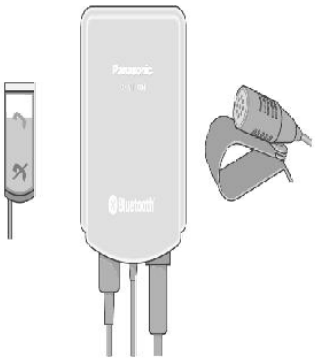
ORDER NO. ACED051234C7
C4

Service Manual

AUTOMOTIVE AFTERMARKET

CY-BT100U

Hands-Free Kit featuring Bluetooth technology



SPECIFICATIONS

Specifications*

General	
Power Supply	DC 12V (11V - 16V), Test Voltage 14.4V Negative Ground (Supplied from a head unit or a Expansion Module)
Current Consumption	Less than 1.0A
Communication Frequency	2402 MHz - 2480 MHz
Number of channels	79 channels
Channel width	1.0 Mhz
Communication mode	Ferquency hopped spread spectrum communication
RF Output	-1 dBm (0.8 mW)
Service area	Within 10 m
Applicable Bluetooth version	Ver. 1.2
Microphone Impedance	600 Ω
Dimensions (W×H×D)**	2-7/8”×4”×15/16” / (72.8×102×24mm) (Excluding Switch Unit and Microphone)
Weight**	1 lbs. 16oz (0.5 kg) (Excluding Switch Unit and Microphone)
* Specifications and the design are subject to possible modification without notice due to improvements. ** Dimensions and Weight shown are approximate. ** Above specifications comply with EIA standards.	

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution :

- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50 - 70°F (30 - 40°C) higher. Please use a soldering iron with temperature control and adjust it to 700 ± 20°F (370 ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.

- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C)

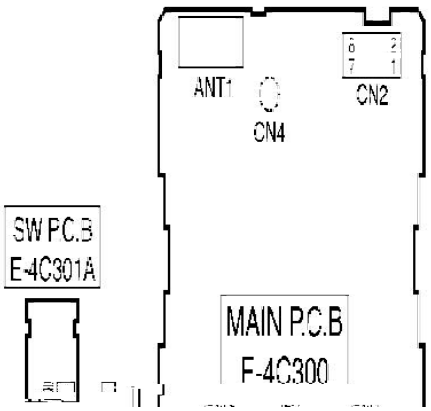
- This lead free solder will be used for the products after serial No. 1,000,001.

2. FEATUERS

- Connection between this unit and head unit allows users to “receive calls”, “call back”,and “reject incoming calls” without direct operation of Bluetooth-ready mobile phone.

3. DIMENSIONS

4. WIRING CONNECTION



5. TERMINALS DESCRIPTION

IC601 : C2CBFD000155

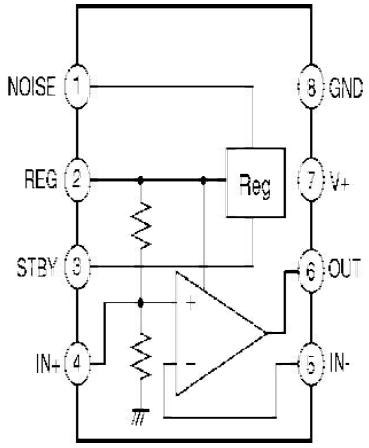
Pin No.	Port	Description	(I/O)	(V)
1	P37/TXD10/ RXD1	Serial communications	I	3.2
2	CNVss	Connects by resistance GND	-	0
3	RESET	System reset input	-	3.2
4	Xout/P47	Crystal oscillator clock	-	1.5
5	Vss	Digital GND	PWR	0
6	Xin/P46	Crystal oscillator clock	-	1.5
7	Vcc	3.3V in digital power supply	PWR	3.2
8	P17/INT1/ CNTR0	Connects by resistance GND	I	0
9	P16/CLK0	LED1 drive	O	3.2
10	P15/RXD0	Serial communications between BT.	I	3.2
11	P14/TXD0	Serial communications between BT.	O	3.2
12	P13/KI3/ AN11	BT MODUDE RTS	I	0
13	P12/KI2/ AN10/CMP02	BT MODUDE CTS	O	0
14	P11/KI1/AN9/ CMP01	BT MODULE BOOT MODE setting	O	3.2
15	P10/KI0/AN8/ CMP00	BT MODULE RESET	O	3.2
16	P45/INT0	BT MODULE RF TEST	O	3.2
17	P33/INT3/ TCIN	ALLION MODE	O	0
18	P32/INT2/ CNTR1/ CMP12	No Connection	-	-
19	AVCC/VREF	3.3V in analog power supply	PWR	3.2
20	P31/TZOUT/ CMP11	AF MUTE	O	3.2
21	AVSS	Analog GND	PWR	0
22	P30/CNTR0/ CMP10	RESET	O	0
23	IVCC	Connects by capacitor GND	O	2.4
24	P07/AN0	NC	I	0
25	P06/AN1	NC	I	0

Pin No.	Port	Description	(I/O)	(V)
26	P05/AN2	HUB CONT control input	I	3.2
27	P04/AN3	HUB EVENT output	O	0
28	MODE	-	-	3.2
29	P03/AN4	NC	I	0
30	P02/AN5	KEY2 input	I	3.2
31	P01/AN6	KEY1 input	I	3.2
32	P00/AN7/ TXD11	Serial communications	O	3.2

6. IC BLOCK DIAGRAM

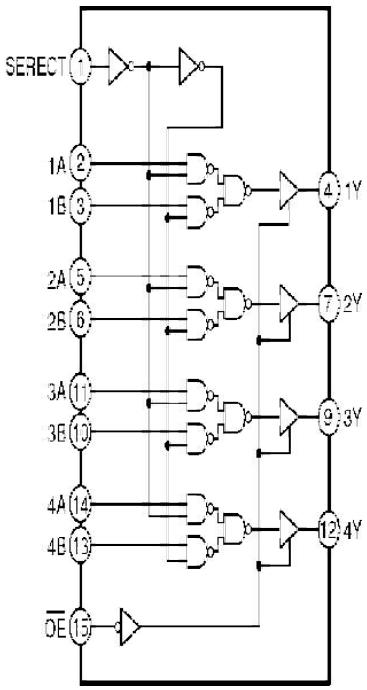
6.1. Main Block

IC201 : C1BB00000860

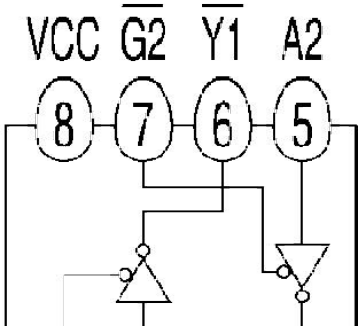


IC301 : C1AB00002417

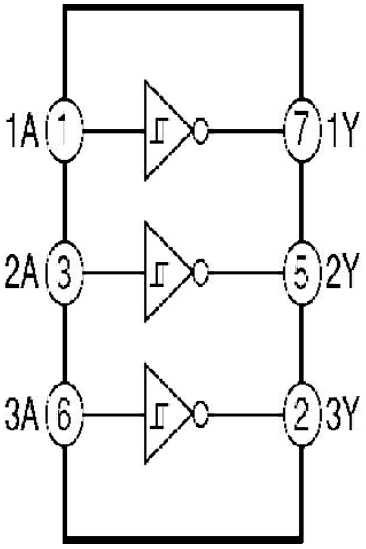
IC502 : C0JBAR000233



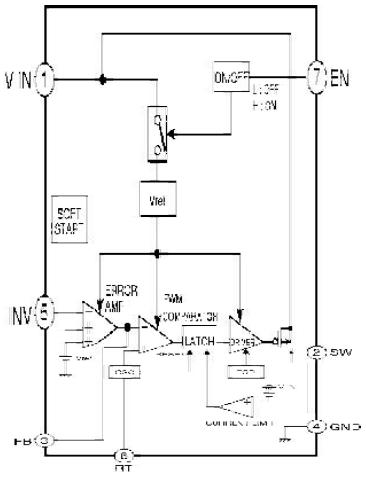
IC603, IC606 : C0JBAB000824



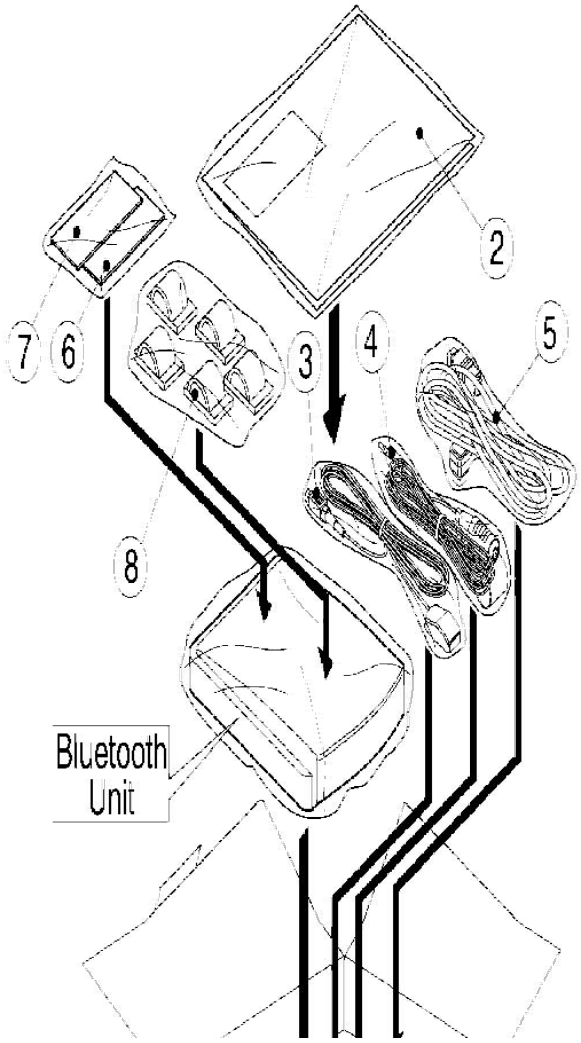
IC605 : C0JBAB000835



IC703 : C0DBAMH00013



7. PACKING PARTS LIST



- Item numbers listed below should not order regular spare parts. (not available)

Item No.	Part No.	Part Name & Description	Q'ty	Remarks
1	-	Inner Carton	1	Not available
2	-	Operating Instructions	(1)	Not available
	-	Owners Information Card	(1)	Not available
3	ASMYSW100U	Switch Unit (2m)	1	
4	L0FBBB000005	Microphone with Bracket (5m)	1	
5	YEAJ011812	System-up connecting cable (3m)	1	
6	YFX994C128ZA	Double-sided Tape	1	
7	YFX994C129ZA	Double-sided Tape	1	
8	YEPFZ8466	Cable Clamp	1	

8. REPLACEMENT PARTS LIST

Notes :

1. **Be sure to make your orders of replacement parts according to this list.**
2. **Important safety notice: Components, identified by mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.**
3. **Location keys in the remarks column indicates the general location of the parts shown in the exploded drawing, as in a road map.**
4. **The marking (RTL) indicates that Retention Time is limited for this item. After the discontinuation of assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.**

   - Order intake period is basically six months after the first shipment.
5. **“T” marks in remarks colum are indicated supply parts of PTW.**
6. **Reference materials of parts with the “TSN“ mark in the remarks column are uploaded in the TSN (Technical Service Navigation) system website. Please download from that website for references.**

Ref. No.	Part No.	Part Name & Description	Remarks
[E-4C300] Main Block			
IC's AND TRANSISTER			
IC201	C1BB00000860	IC	T
IC301	C1AB00002417	IC	T
IC302	C0JBAE000333	IC	T
IC501	C5ZBZ0000016	IC	T
IC502	C0JBAR000233	IC	T
IC601	C2CBFD000155	IC	T
IC602	C0JBAR000233	IC	T
IC603	C0JBAB000824	IC	T
IC604	C0JBAZ002262	IC	T
IC605	C0JBAB000835	IC	T
IC606	C0JBAB000824	IC	T
IC607	C0EBF0000467	IC	T
IC703	C0DBAMH00013	IC	T
Q251	B1GDCFNN0007	Transistor	T
Q252	B1GBHBEA0003	Transistor	T
Q352	B1GBHBEA0003	Transistor	T
Q403	B1GDCFJJ0008	Transistor	T
Q501	B1GBCFNN0009	Transistor	T
Q601	B1GBCFNN0009	Transistor	T
Q701	2SD0601AHL	Transistor	T
Q702	B1GBJCEJ0001	Transistor	T
Q703	B1GBCFNN0009	Transistor	T
Q705	B1GBCFNN0009	Transistor	T
DIODEs			
D201	B0ADCJ000025	Diode	T
D602	B0BC5R6A0068	Zener Diode	T
D603	B0BC5R6A0068	Zener Diode	T
D604	MA2J72900L	Diode	T
D605	MA2J72900L	Diode	T
D606	B0BC4R700006	Diode	T
D607	B0BC4R700006	Diode	T
D608	B0BC4R700006	Diode	T
D701	B0ECKP000002	Diode	T
D702	B0JCPE000003	Diode	T
D703	B0BC2R0A0068	Zener Diode	T
D704	MA2J72900L	Diode	T
D705	MA2J72900L	Diode	T
D706	B0BC5R6A0068	Zener Diode	T
CAPACITORs			
C201	F1H0J1050010	Chip, 1 F 6.3WV	T
C202	F1J0J106A038	Chip, 10 F 6.3WV	T
C203	F1J0J106A038	Chip, 10 F 6.3WV	T
C204	F1H0J1050010	Chip, 1 F 6.3WV	T
C205	F1H1C104A107	Chip, 0.1 F 16WV	T
C206	F1J0J106A038	Chip, 10 F 6.3WV	T
C207	F1H1H102A842	Chip, 0.001 F 50WV	T
C251	F1J0J4750003	Chip, 4.7 F 6.3WV	T

Ref. No.	Part No.	Part Name & Description	Remarks
C262	F1H1C104A107	Chip, 0.1 F 16WV	T
C301	F1H1C104A107	Chip, 0.1 F 16WV	T
C302	F1K0J476A003	47 F 6.3WV	T
C303	F1H1C104A107	Chip, 0.1 F 16WV	T
C304	F1H1H101A737	Chip, 100PF 50WV	T
C305	F1H0J1050010	Chip, 1 F 6.3WV	T
C306	F1H1H101A737	Chip, 100PF 50WV	T
C307	F1H1H101A737	Chip, 100PF 50WV	T
C308	F1K1A3350001	3.3 F 10WV	T
C309	F1K1A3350001	3.3 F 10WV	T
C310	F1K1A3350001	3.3 F 10WV	T
C311	F1H1C104A107	Chip, 0.1 F 16WV	T
C312	F1H0J1050010	Chip, 1 F 6.3WV	T
C313	F1H0J1050010	Chip, 1 F 6.3WV	T
C351	F1J0J4750003	Chip, 4.7 F 6.3WV	T
C402	F1H0J2250007	Chip, 2.2 F 6.3WV	T
C502	F1H1C104A107	Chip, 0.1 F 16WV	T
C503	F1K0J476A003	47 F 6.3WV	T
C504	F1H1C104A107	Chip, 0.1 F 16WV	T
C508	F1H1C104A107	Chip, 0.1 F 16WV	T
C511	F1H1HR50A260	0.5 F 50WV	T
C601	F1H1C104A107	Chip, 0.1 F 16WV	T
C602	F1H1C104A107	Chip, 0.1 F 16WV	T
C603	F1K0J476A003	47 F 6.3WV	T
C604	F1H1C104A107	Chip, 0.1 F 16WV	T
C605	F1H1C104A107	Chip, 0.1 F 16WV	T
C606	F1H1E103A086	Chip, 0.01 F 25WV	T
C607	F1H1E103A086	Chip, 0.01 F 25WV	T
C608	F1H1C104A107	Chip, 0.1 F 16WV	T
C609	F1H1C104A107	Chip, 0.1 F 16WV	T
C610	F1H1C104A107	Chip, 0.1 F 16WV	T
C611	F1H1C104A107	Chip, 0.1 F 16WV	T
C612	F1H1C104A107	Chip, 0.1 F 16WV	T
C613	F1H1E103A086	Chip, 0.01 F 25WV	T
C614	F1H1E103A086	Chip, 0.01 F 25WV	T
C701	EEEFK1C221P	Electrolytic, 220PF 16WV	T
C702	F1H1H472A842	Chip, 4700PF 50WV	T
C703	F1H1C104A107	Chip, 0.1 F 16WV	T
C704	F1J1C105A173	Chip, 1 F 16WV	T
C705	EEEFC0J101P	Electrolytic, 100PF 6.3WV	T
C706	F1J1C105A173	Chip, 1 F 16WV	T
C707	EEEFC1C470P	Electrolytic, 47 F 16WV	T

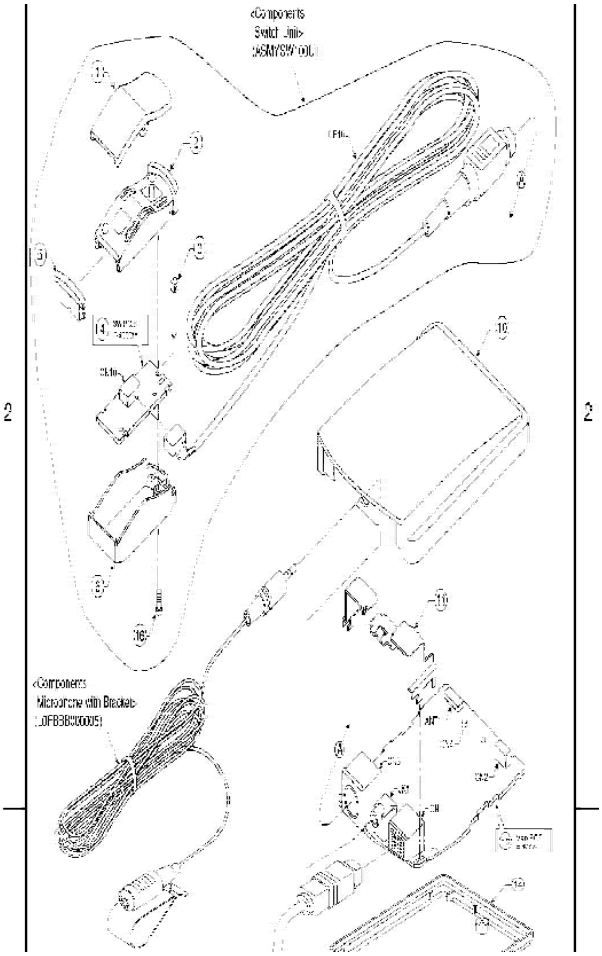
Ref. No.	Part No.	Part Name & Description	Remarks
C708	F1J1C105A173	Chip, 1 μF 16WV	T
C709	F1J0J106A038	Chip, 10 μF 6.3WV	T
C711	F1J1C105A173	Chip, 1 μF 16WV	T
C712	EEEFC0J101P	Electrolytic, 100PF 6.3WV	T
C713	F1K0J1060017	Chip, 10 μF 6.3WV	T
C714	F1H1H102A842	Chip, 0.001 μF 50WV	T
C715	F1H1C104A107	Chip, 0.1 μF 16WV	T
RESISTORs			
R201	D0GB101JA008	Chip, 100 Ω	T
R202	D0GB682JA008	Chip, 6.8k Ω	T
R203	D0GB392JA008	Chip, 3.9k Ω	T
R204	D0GB333JA008	Chip, 33k Ω	T
R205	D0GB103JA008	Chip, 10k Ω	T
R251	D0GB561JA008	Chip, 560 Ω	T
R252	D0GB473JA008	Chip, 47k Ω	T
R253	D0GBR00JA008	Chip, 0 Ω	T
R254	D0GBR00JA008	Chip, 0 Ω	T
R301	D0GB470JA008	Chip, 47 Ω	T
R302	D0GB393JA008	Chip, 39k Ω	T
R303	D0GB393JA008	Chip, 39k Ω	T
R304	D0GB103JA008	Chip, 10k Ω	T
R305	D0GB103JA008	Chip, 10k Ω	T
R306	D0GB243JA008	Chip, 24k Ω	T
R307	D0GB103JA008	Chip, 10k Ω	T
R308	D0GB243JA008	Chip, 24k Ω	T
R309	D0GB102JA008	Chip, 1k 1/10W	T
R310	D0GB103JA008	Chip, 10k	T
R351	D0GB561JA008	Chip, 560	T
R352	D0GB473JA008	Chip, 47k	T
R353	D0GBR00JA008	Chip, 0	T
R354	D0GBR00JA008	Chip, 0	T
R401	D0GB562JA008	Chip, 5.6k	T
R402	D0GB221JA008	Chip, 220	T
R501	D0GB472JA008	Chip, 4.7k	T
R502	D0GB471JA008	Chip, 470	T
R503	D0GB472JA008	Chip, 4.7k	T
R504	D0GB472JA008	Chip, 4.7k	T
R505	D0GB472JA008	Chip, 4.7k	T
R506	D0GB472JA008	Chip, 4.7k	T
R507	D0GB472JA008	Chip, 4.7k	T
R511	D0GB103JA008	Chip, 10k	T
R601	D0GB103JA008	Chip, 10k	T
R602	D0GB473JA008	Chip, 47k	T
R603	D0GB473JA008	Chip, 47k	T
R604	D0GB472JA008	Chip, 4.7k	T

Ref. No.	Part No.	Part Name & Description	Remarks
R605	D0GB473JA008	Chip, 47k	T
R606	D0GB102JA008	Chip, 1k 1/10W	T
R607	D0GB103JA008	Chip, 10k	T
R608	D0GB473JA008	Chip, 47k	T
R609	D0GB473JA008	Chip, 47k	T
R610	D0GB102JA008	Chip, 1k 1/10W	T
R611	D0GB102JA008	Chip, 1k 1/10W	T
R612	D0GB473JA008	Chip, 47k	T
R613	D0GB102JA008	Chip, 1k 1/10W	T
R614	D0GB473JA008	Chip, 47k	T
R615	D0GB101JA008	Chip, 100	T
R616	D0GB102JA008	Chip, 1k 1/10W	T
R618	D0GB220JA008	Chip, 22	T
R619	D0GB220JA008	Chip, 22	T
R620	D0GB221JA008	Chip, 220	T
R621	D0GBR00JA008	Chip, 0	T
R622	D0GBR00JA008	Chip, 0	T
R623	D0GB472JA008	Chip, 4.7k	T
R624	D0GBR00JA008	Chip, 0	T
R625	D0GB102JA008	Chip, 1k 1/10W	T
R626	D0GB102JA008	Chip, 1k 1/10W	T
R627	D0GB103JA008	Chip, 10k	T
R628	D0GB103JA008	Chip, 10k	T
R701	D0GN3R3JA005	Chip, 3.3 1/2W	T
R702	D0GB473JA008	Chip, 47k	T
R703	D0GB223JA008	Chip, 22k	T
R704	D0GB513JA008	Chip, 51k	T
R705	D0GB221JA008	Chip, 220	T
R706	D0GB154JA008	Chip, 150k	T
NETWORK RESISTOR			
RA501	D1H847040001	Network Resistor	T
RA502	EXBV8V221JV	Network Resistor	T
RA601	EXBV8V473JV	Network Resistor	T
CONNECTORs			
CN1	K1AB113B0002	13P Connector	T
CN2	K1KB08AA0201	8P Connector	T
CN3	K1CB108B0055	8P Connector	T
CN4	K1QZB1AD0009	Jack	T
JK1	K2HD103B0003	Jack	T
FILTER			
XL601	H2C184500002	Band pass Filter	T
COILs			
L501	J0JGC0000018	Coil	T

Ref. No.	Part No.	Part Name & Description	Remarks
L502	G1C100J00001	Coil	T
L700	G1C220MA0077	Coil	T
L701	G1C220MA0077	Coil	T
L702	G1C100J00001	Coil	T
L704	G1C101J00002	Coil	T
L705	G1C221JA0036	Coil	T
[E-4C301A] Switch Block			
TRANSISTERs			
Q2	2SD0601AHL	Transister	T
Q3	2SD0601AHL	Transister	T
Q4	2SD0601AHL	Transister	T
DIODEs			
D2	B3AEB0000083	LED(Blue)	T
D3	B3AAB0000252	LED(Red)	T
D4	B3AEB0000083	LED(Blue)	T
RESISTORs			
R2	D0GF221JA017	Chip, 220 Ω 1/4W	T
R3	D0GF271JA017	Chip, 270 Ω 1/4W	T
R4	D0GF271JA017	Chip, 270 Ω 1/4W	T
CONNECTOR			
CN10	K1KA07BA0014	7P Connector	T
SWITCHs			
SW1	K0H1BA000445	Tact Switch	T
SW2	K0H1BA000445	Tact Switch	T
Accessories			
PRINTINGs			
	-	Operating Instructions	TSN
	-	Owners Information Card	TSN
COMPONENTs			
	ASMYSW100U	Switch Unit (2m)	T/RTL
	L0FBBB000005	Microphone with Bracket (5m)	T
	YEAJ011812	System-up connecting cable (3m)	T
	YFX994C128ZA	Double-sided Tape	T
	YFX994C129ZA	Double-sided Tape	T
	YEPFZ8466	Cable Clamp	T
Mechanical Parts			
MISCELLANEOUS			
ANT1	N1LBGJ000001	Anntena	T
CP10	YEAJ071813	Cable (BT100)	T
1	YFE134C526ZA	Button	T
2	YFC034C036ZA	Top Cover	T
3	YFX074C017ZA	Cord Clamp	T
4	AAPB301A0	SW w/Component	T/RTL

Ref. No.	Part No.	Part Name & Description	Remarks
5	YFX014C096ZA	Indicator	T
6	YFC034C037ZA	Bottom Cover	T
10	YFC034C033ZA	Upper Case	T
11	YFX214C419ZA	CN Bracket	T
12	AAPB300A0	Main w/Component	T/RTL
14	YFC034C031ZA	Bottom Case	T
15	XTB2+8GFZ	Screw	T
16	XTB2+6GFZ	Screw	T

9. EXPLODED VIEW



10. WIRING DIAGRAM

10.1. Main Block (Top View)

10.2. Main Block (Bottom View)

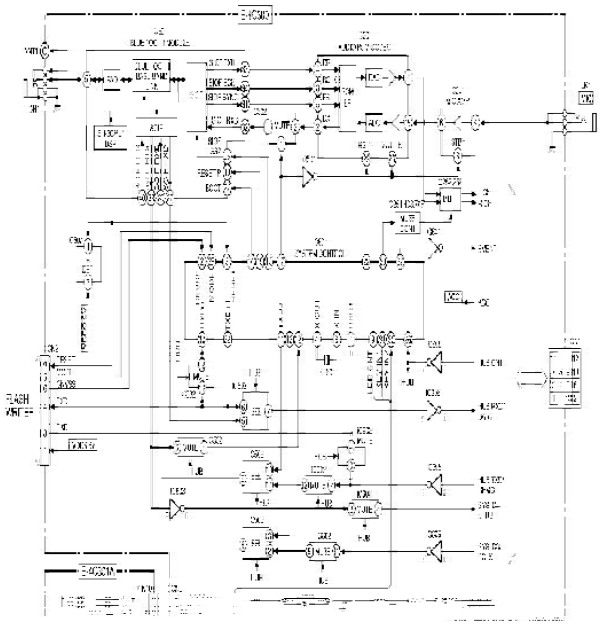
11. SCHEMATIC DIAGRAM-1

11.1. SW Block

12. SCHEMATIC DIAGRAM-2 & BLOCK DIAGRAM

12.1. Main Block

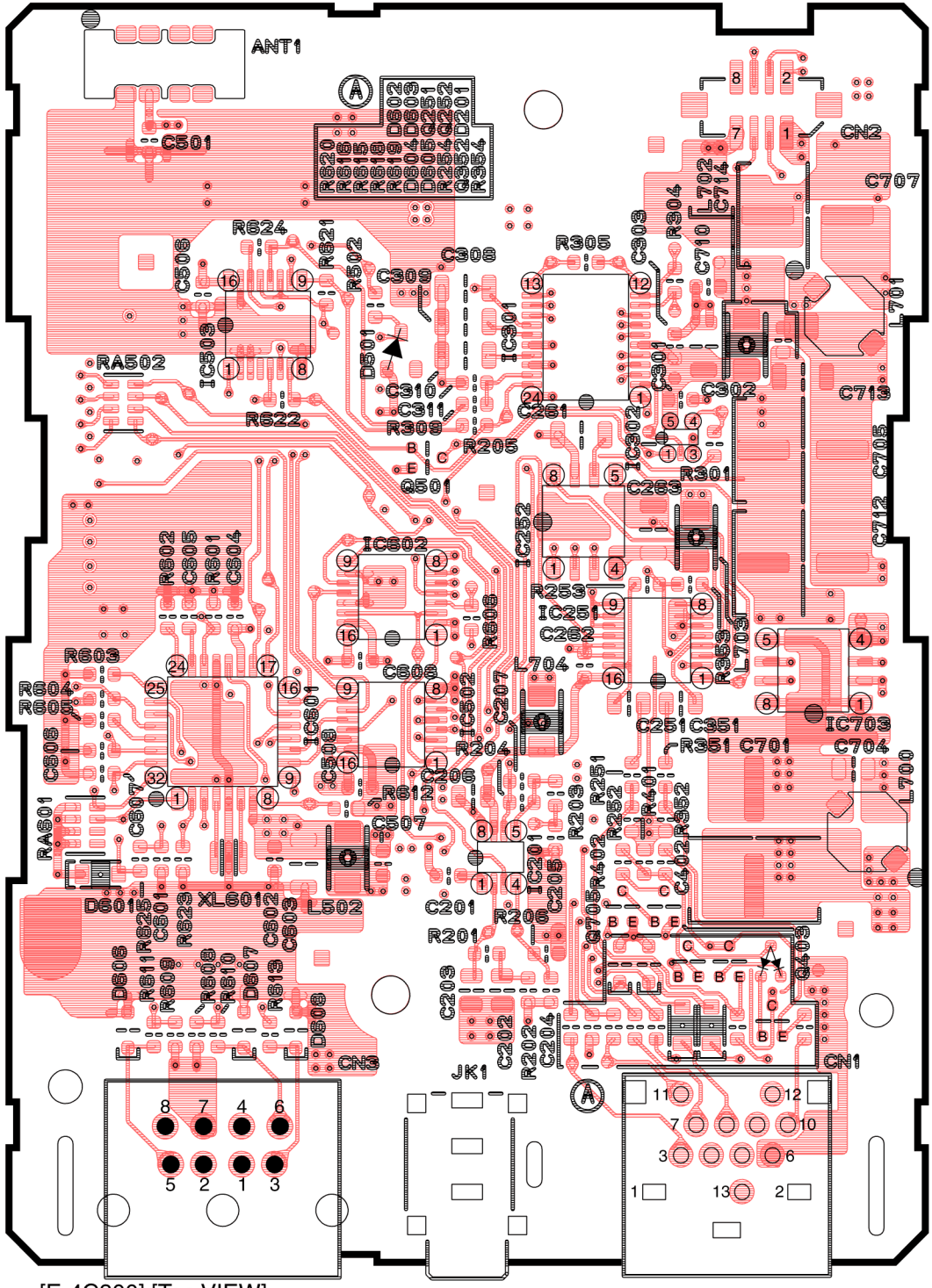
12.2. BLOCK DIAGRAM

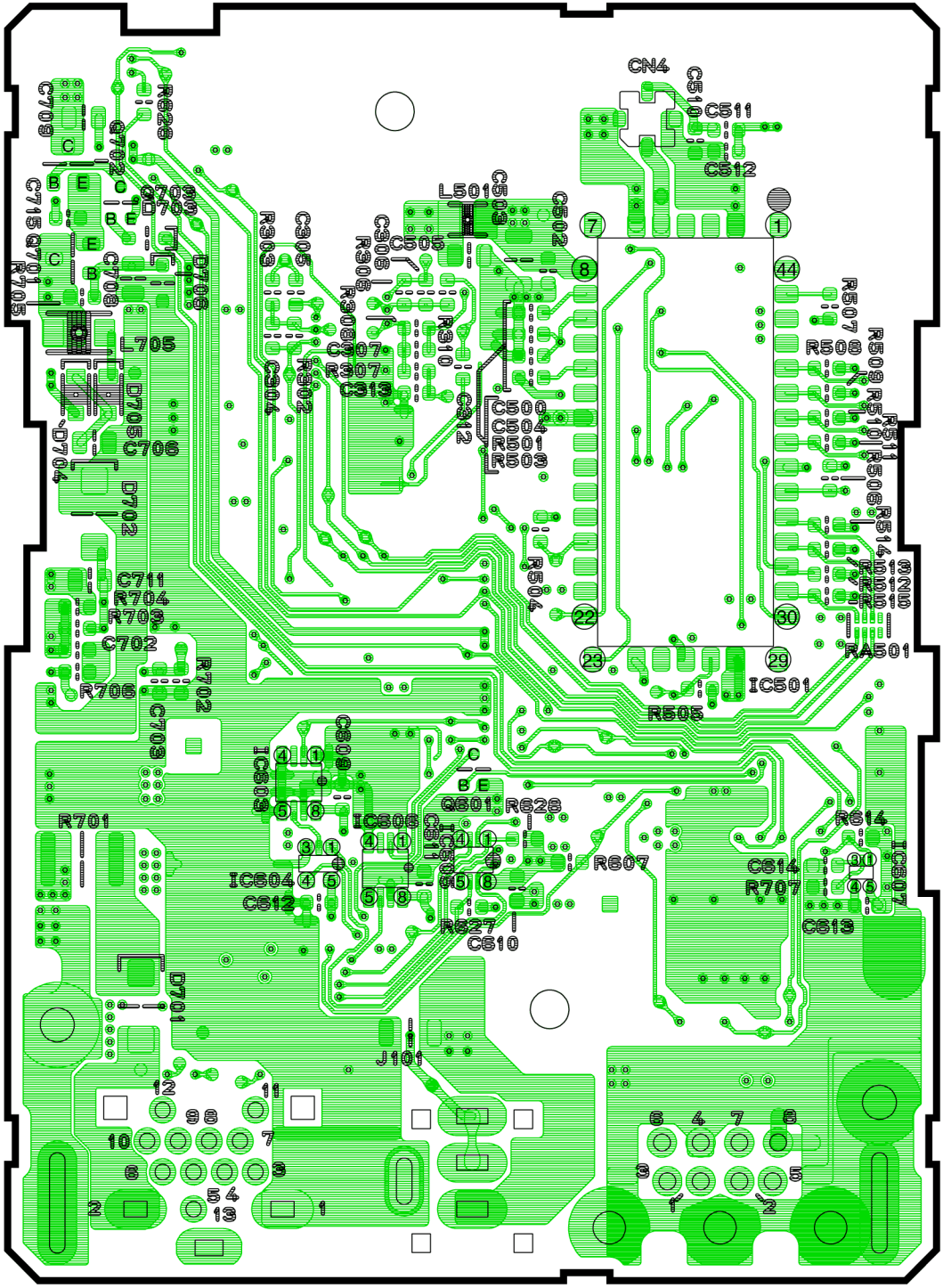


13. SCHEMATIC DIAGRAM for Printing with Letter Size

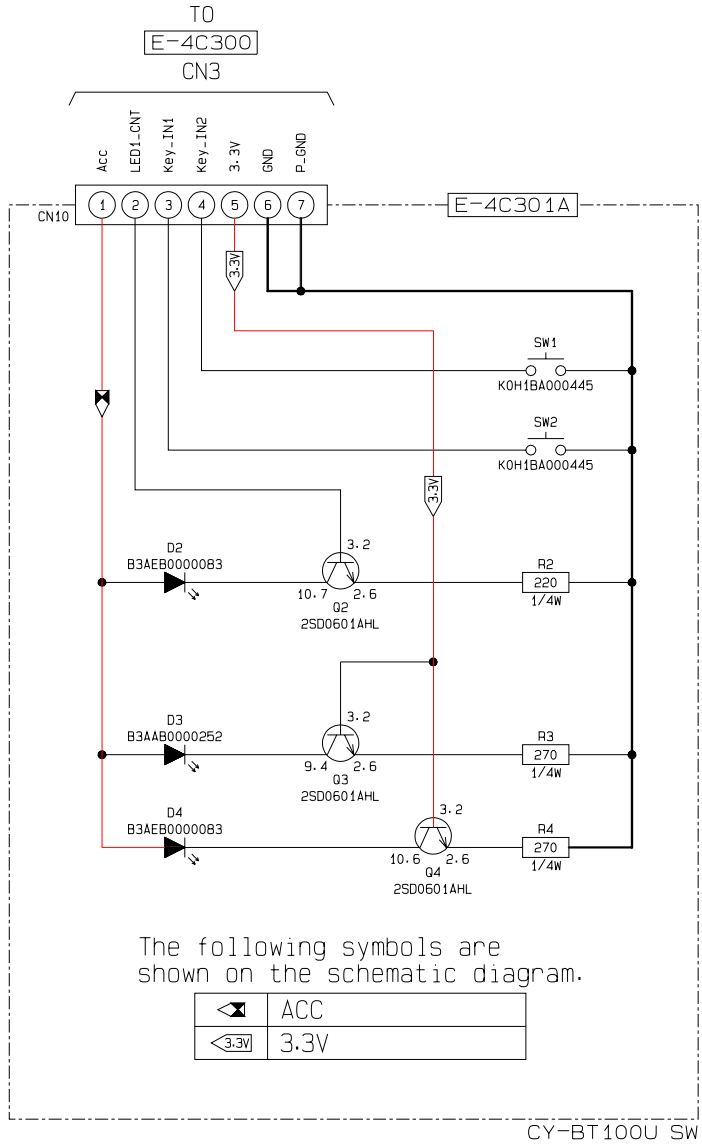
13.1. Main Block (Left Side)

13.2. Main Block (Right Side)


ANT1
C501
CN2
C707
L702
C714
C710
R304
C303
R305
C308
C309
R624
R621
R622
C310
C311
R309
R205
Q501
IC301
C301
C302
C261
C263
R301
C713
L701
C705
C712
IC252
IC802
R253
IC251
C262
L704
L705
IC703
C704
C701
C351
C251
R351
L700
R603
R604
R605
C606
C607
C608
C609
C610
C611
C612
C613
C614
C615
C616
C617
C618
C619
C620
C621
C622
C623
C624
C625
C626
C627
C628
C629
C630
C631
C632
C633
C634
C635
C636
C637
C638
C639
C640
C641
C642
C643
C644
C645



[E-4C300] [Bottom VIEW]


TO
E-4C300
CN3
Acc
LED1_CNT
Key_IN1
Key_IN2
3.3V
GND
P_GND
CN10
1
2
3
4
5
6
7
E-4C301A
3.3V
SW1
K0H1BA000445
SW2
K0H1BA000445
3.3V
D2
B3AEB0000083
3.2
10.7
2.6
Q2
2SD0601AHL
R2
220
1/4W
D3
B3AAB0000252
3.2
9.4
2.6
Q3
2SD0601AHL
R3
270
1/4W
D4
B3AEB0000083
3.2
10.6
2.6
Q4
2SD0601AHL
R4
270
1/4W
The following symbols are
shown on the schematic diagram.
ACC
3.3V
CY-BT100U SW

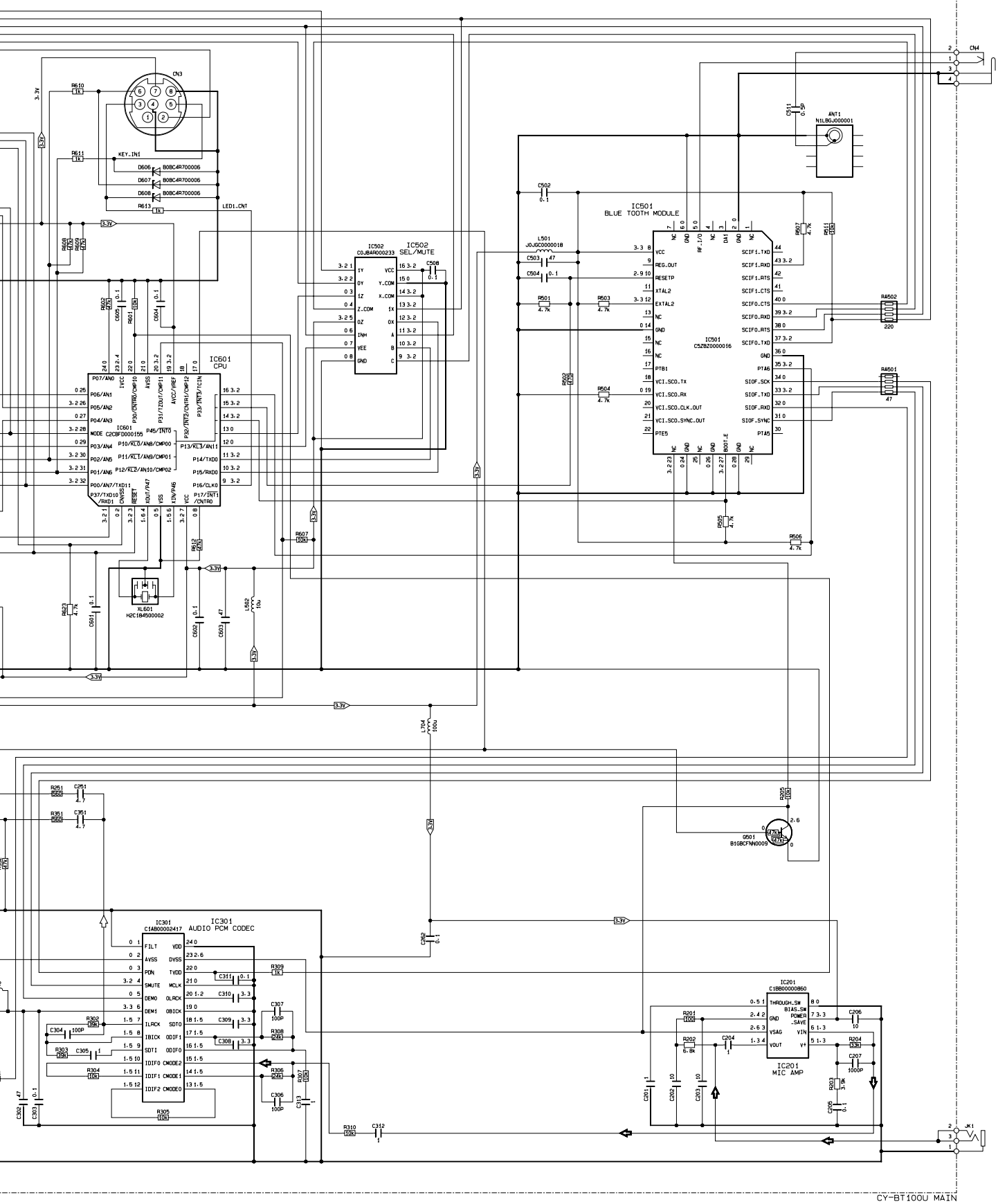
The following symbols are shown on the schematic diagram.

ACC	ACC
5V	5V
3.3V	3.3V
MIC	MIC
AUDIO	AUDIO

IC601

Waveform	Pin No.	Waveform	Pin No.
2V/DIV• 10MS/DIV	1PIN	1V/DIV• 0.2uS/DIV	6PIN
2V/DIV• 0.2uS/DIV	4PIN	2V/DIV• 0.2uS/DIV	9PIN

E-4C300


IC501
BLUE TOOTH MODULE
IC501
C5ZBZ0000016
IC502
SEL/MUTE
IC502
C0JBAR000233
IC601
CPU
IC601
MODE C2CBFD000155
IC301
AUDIO PCM CODEC
IC301
C1AB00002417
IC201
MIC AMP
IC201
C1BB000000860
L501
J0JGC0000018
ANT1
N1LBGJ000001
CN3
CN4
JK1
XL601
H2C184500002
Q501
B1GBCFNN0009
KEY_IN1
LED1_CNT
D606 B0BC4R700006
D607 B0BC4R700006
D608 B0BC4R700006
R610 1k
R611 1k
R613 1k
3.3V
CY-BT100U MAIN

12 SCHEMATIC DIAGRAM-2 & BLOCK DIAGRAM

12.1. Main Block